

REMARKS/RESPONSE

This is in response to the Notification To Comply With Requirements For Patent Applications Containing Nucleotide and/or Amino Acid Sequence Disclosures, dated July 1, 2005.

Applicants respectfully submit herewith a replacement paper copy of the "Sequence Listing" which conforms to 37 CFR §§ 1.821-1.825, a substitute diskette of the "Sequence Listing" in Computer Readable Form, along with a Statement to Support Filing and Submission in Accordance with 37 CFR §§ 1.821 through 1.825. Applicants believe that the application is in compliance with the sequence listing requirements set forth by 37 CFR §§ 1.821 through 1.825. No new matter has been added. Entry of this Sequence Listing into the application is requested.

Applicants are submitting their response herewith within the two-month response period set to expire on December 2, 2006. Applicants believe that no fees are due. However, if a fee is due, the Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 03-2775, under Order No. 12810-00067-US from which the undersigned is authorized to draw.

Respectfully submitted,

By 

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SEQUENCE LISTING

<110> Kogel, Karl-Heinz
 Huckelhoven, Ralph
 Trujillo, Marco

<120> Method for Obtaining the pathogenic resistance in plants

<130> 12810-00067-US

<140> US 10/522,106
 <141> 2005-01-24

<160> 24

<170> PatentIn version 3.3

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 <223> coding for NADPH oxidase (fragment)

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 Ile Glu Met His Asn Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala
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 Arg Ser Ala Leu Ile Thr Met Leu Gln Ala Leu Asn His Ala Lys Asn
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 ggt gtc gat gta gtg tct ggm act cga gtc cgg aca cat ttt gca aga 193
 Gly Val Asp Val Val Ser Xaa Thr Arg Val Arg Thr His Phe Ala Arg
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 cca aat ttt aag agg gtg ctg tct aag gta gcc gcc aaa cat cct tat 241
 Pro Asn Phe Lys Arg Val Leu Ser Lys Val Ala Ala Lys His Pro Tyr
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 gcc aag ata gga gtg ttc tat tgc gga gct cca gtt ctg gcg cag gaa 289
 Ala Lys Ile Gly Val Phe Tyr Cys Gly Ala Pro Val Leu Ala Gln Glu
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Pro Asn Phe Lys Arg Val Leu Ser Lys Val Ala Ala Lys His Pro Tyr			
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Asp Arg Ser Ser Asp Asp Gly Glu Leu Val Glu Val Thr Leu Asp	
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Gly Glu Leu Thr Gly Gly Pro Ser Ser Ser Ser Ser Arg Ser Arg Ser	
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Pro Ser Ile Arg Arg Ser Ser Ser His Arg Leu Leu Gln Phe Ser Gln	
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Pro Ser Gly Leu Glu Ser Ala Leu Ala Ala Arg Ala Ala Arg Arg Gln	
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Ile	Leu	Arg	Phe	Phe	Arg	Ser	Gly	Ser	Tyr	Ser	Val	Arg	Leu	Leu	Lys				
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Val	Ala	Ile	Tyr	Pro	Gly	Asn	Val	Leu	Thr	Leu	Gln	Met	Ser	Lys	Pro				
625					630														

Glu Glu Glu Glu Asp Ala Ser Thr Asp Leu Tyr Pro Pro Met Gly Arg
 770 775 780
 Asn Lys Pro His Val Asp Leu Gly Thr Leu Met Thr Ile Thr Ser Arg
 785 790 795 800
 Pro Lys Lys Ile Leu Lys Thr Thr Asn Ala Tyr Phe Tyr Trp Val Thr
 805 810 815
 Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly Val Met Asn Glu Ile
 820 825 830
 Ala Asp Leu Asp Gln Arg Asn Ile Ile Glu Met His Asn Tyr Leu Thr
 835 840 845
 Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu Ile Thr Met Leu
 850 855 860
 Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp Ile Val Ser Gly Thr
 865 870 875 880
 Lys Val Arg Thr His Phe Ala Arg Pro Asn Trp Arg Lys Val Leu Ser
 885 890 895
 Lys Ile Ser Ser Lys His Pro Tyr Ala Lys Ile Gly Val Phe Tyr Cys
 900 905 910
 Gly Ala Pro Val Leu Ala Gln Glu Leu Ser Lys Leu Cys His Glu Phe
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 Asn Gly Lys Cys Thr Thr Lys Phe Glu Phe His Lys Glu His Phe
 930 935 940

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 <212> DNA
 <213> *Nicotiana tabacum*

<220>
 <221> CDS
 <222> (1)..(2886)
 <223> coding for NADPH oxidase

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 Met Arg Gly Leu Pro Gly His Glu Arg Arg Trp Thr Ser Asp Thr Val
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 tct tcc gac aag gat ttt agt ggt gaa tta tcg ccg gga gct gat tcc 96
 Ser Ser Asp Lys Asp Phe Ser Gly Glu Leu Ser Pro Gly Ala Asp Ser
 20 25 30
 ggc tat aat tcc ggt ttt gct tcc gag gag ttt gtt gaa gtc acg ctt 144
 Gly Tyr Asn Ser Gly Phe Ala Ser Glu Glu Phe Val Glu Val Thr Leu
 35 40 45
 gat ctt cag gat gat gat acc att att cta cgg agc gtt gaa ccg gct 192
 Asp Leu Gln Asp Asp Asp Thr Ile Ile Leu Arg Ser Val Glu Pro Ala
 50 55 60
 act gtg att aac att gac gct cct gat ctt ccc gcc gga gtc ggt att 240
 Thr Val Ile Asn Ile Asp Ala Pro Asp Leu Pro Ala Gly Val Gly Ile
 65 70 75 80
 tcc gga gtt tca att gaa act ccg acg tca gca tcg gtg tcg gaa tct 288
 Ser Gly Val Ser Ile Glu Thr Pro Thr Ser Ala Ser Val Ser Glu Ser
 85 90 95
 cga tcg ccg acg atc cgc cgg agt tca tct agt aaa ctt cgt cag ttt 336
 Arg Ser Pro Thr Ile Arg Arg Ser Ser Ser Lys Leu Arg Gln Phe
 100 105 110
 tca cag gag ttg aaa gct gag gcg gtt gcg aaa gcg agg cag ttt tca 384
 Ser Gln Glu Leu Lys Ala Glu Ala Val Ala Lys Ala Arg Gln Phe Ser
 115 120 125
 caa gag ctg aag gcg gag tta agg aga ttc tca tgg agc cat ggg cat 432
 Gln Glu Leu Lys Ala Glu Leu Arg Arg Phe Ser Trp Ser His Gly His
 130 135 140

gcg tct cgc gcg ttt tog ccc tcg tcg ttt ttt caa aac gcc gtc gtt	480
Ala Ser Arg Ala Phe Ser Pro Ser Ser Phe Phe Gln Asn Ala Val Val	
145 150 155 160	
gga aca ggt aac ggc gtg gac tcg gct tta gcg gca cgt gca tta cgt	528
Gly Thr Gly Asn Gly Val Asp Ser Ala Leu Ala Ala Arg Ala Leu Arg	
165 170 175	
cgg caa cgc gcg cag ctt gat cgg act cgt tcc agc gcc cat aga gct	576
Arg Gln Arg Ala Gln Leu Asp Arg Thr Arg Ser Ser Ala His Arg Ala	
180 185 190	
ctt cgt aga ctc aaa ttc att agc aat aac aaa acc aat gga tgg aat	624
Leu Arg Arg Leu Lys Phe Ile Ser Asn Asn Lys Thr Asn Gly Trp Asn	
195 200 205	
gaa gtt gaa aac aat ttc tca aag ctc gct aaa gac ggt tat ctt tac	672
Glu Val Glu Asn Asn Phe Ser Lys Leu Ala Lys Asp Gly Tyr Leu Tyr	
210 215 220	
cgt tcc gat ttc gca caa tgc ata ggt atg aag gat tcg aag gaa ttt	720
Arg Ser Asp Phe Ala Gln Cys Ile Gly Met Lys Asp Ser Lys Glu Phe	
225 230 235 240	
gca ttg gaa tta ttt gat gct ttg agt aga aga aga aga tta aag gtt	768
Ala Leu Glu Leu Phe Asp Ala Leu Ser Arg Arg Arg Arg Leu Lys Val	
245 250 255	
gat aaa att agc aag gag gaa ttg tat gag tac tgg tct caa atc acc	816
Asp Lys Ile Ser Lys Glu Glu Leu Tyr Glu Tyr Trp Ser Gln Ile Thr	
260 265 270	
gat cag agt ttc gat tct cgg ctt cag atc tcc ttc gac atg gtg gac	864
Asp Gln Ser Phe Asp Ser Arg Leu Gln Ile Ser Phe Asp Met Val Asp	
275 280 285	
aag aat gaa gat ggt cga att gct gaa gag gaa gta aaa gag atc atc	912
Lys Asn Glu Asp Gly Arg Ile Ala Glu Glu Glu Val Lys Glu Ile Ile	
290 295 300	
atg cta agt gca tct gca aac aag tta tca aga tta aaa gaa caa gca	960
Met Leu Ser Ala Ser Ala Asn Lys Leu Ser Arg Leu Lys Glu Gln Ala	
305 310 315 320	
gag gag tat gca gct tta atc atg gaa gaa tta gat cct gaa aga ctc	1008
Glu Glu Tyr Ala Ala Leu Ile Met Glu Glu Leu Asp Pro Glu Arg Leu	
325 330 335	
ggc tac att gag cta tgg cag ctg gaa aca ctt ctc ctc caa aag gac	1056
Gly Tyr Ile Glu Leu Trp Gln Leu Glu Thr Leu Leu Leu Lys Asp	
340 345 350	
act tac ctc aac tac agt caa gca cta agt tac acg agc caa gcc ttg	1104
Thr Tyr Leu Asn Tyr Ser Gln Ala Leu Ser Tyr Thr Ser Gln Ala Leu	
355 360 365	
agc caa aac ctt cac gga tta agg aag aaa agc cca ata aaa aga atg	1152
Ser Gln Asn Leu His Gly Leu Arg Lys Lys Ser Pro Ile Lys Arg Met	
370 375 380	
agc aca aaa ctt gtc tat tca ttg caa gaa aac tgg aag aga att tgg	1200
Ser Thr Lys Leu Val Tyr Ser Leu Gln Glu Asn Trp Lys Arg Ile Trp	
385 390 395 400	
gtt ctc act tta tgg att ttg ata atg att ggg ctt ttt ctt tgg aag	1248
Val Leu Thr Leu Trp Ile Leu Ile Met Ile Gly Leu Phe Leu Trp Lys	
405 410 415	
ttc tat cag tac aaa aac aag agt gca ttc cgt gtc atg ggt tat tgc	1296
Phe Tyr Gln Tyr Lys Asn Lys Ser Ala Phe Arg Val Met Gly Tyr Cys	
420 425 430	
ctt gtc acg gct aag ggc gct gct gag act ctc aag ttc aac atg gct	1344
Leu Val Thr Ala Lys Gly Ala Ala Glu Thr Leu Lys Phe Asn Met Ala	
435 440 445	
ctt ata tta ttg cca gta tgc aga aac act att aca tgg ctc agg tcc	1392
Leu Ile Leu Leu Pro Val Cys Arg Asn Thr Ile Thr Trp Leu Arg Ser	
450 455 460	
acc aag ttg agc cat ttt gta ccc ttt gac gac aac atc aac ttt cac	1440

Thr	Lys	Leu	Ser	His	Phe	Val	Pro	Phe	Asp	Asp	Asn	Ile	Asn	Phe	His		
465					470					475					480		
aag	act	gtc	gct	gca	gcc	att	gtc	act	ggg	atc	ata	ctc	cat	gct	ggg	1488	
Lys	Thr	Val	Ala	Ala	Ala	Ile	Val	Thr	Gly	Ile	Ile	Leu	His	Ala	Gly		
				485					490					495			
aac	cat	ctt	gta	tgt	gat	ttc	cca	agg	ctt	ata	cat	gca	gat	gat	caa	1536	
Asn	His	Leu	Val	Cys	Asp	Phe	Pro	Arg	Leu	Ile	His	Ala	Asp	Asp	Gln		
			500					505				510					
gat	tat	caa	agt	ttt	ttg	tcg	aat	gat	ttt	ggc	caa	agt	aag	cct	gga	1584	
Asp	Tyr	Gln	Ser	Phe	Leu	Ser	Asn	Asp	Phe	Gly	Gln	Ser	Lys	Pro	Gly		
		515					520					525					
tac	ata	gac	ctt	gtt	aaa	gga	gtt	gag	ggg	gtg	acg	gga	ata	ata	atg	1632	
Tyr	Ile	Asp	Leu	Val	Lys	Gly	Val	Glu	Gly	Val	Thr	Gly	Ile	Ile	Met		
		530				535					540						
gta	atc	ctt	atg	gcc	att	gct	ttc	act	ctt	gct	aca	cga	tgg	ttt	aga	1680	
Val	Ile	Leu	Met	Ala	Ile	Ala	Phe	Thr	Leu	Ala	Thr	Arg	Trp	Phe	Arg		
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Arg	Ser	Leu	Ile	Lys	Leu	Pro	Lys	Pro	Phe	Asp	Arg	Leu	Thr	Gly	Phe		
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aat	gca	ttc	tgg	tat	tca	cac	cac	ctt	gtc	att	gtc	tac	atc	cta		1776	
Asn	Ala	Phe	Trp	Tyr	Ser	His	His	Leu	Val	Ile	Val	Tyr	Ile	Leu			
			580					585				590					
ctg	atc	atc	cat	ggc	acg	ttc	ctc	ttc	ctt	gtg	cat	aaa	tgg	tac	tcc	1824	
Leu	Ile	Ile	His	Gly	Thr	Phe	Leu	Phe	Leu	Val	His	Lys	Trp	Tyr	Ser		
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aag	acg	acg	tgg	atg	tat	cta	gca	gtt	cct	gtg	ctt	ctc	tac	gca	ggg	1872	
Lys	Thr	Thr	Trp	Met	Tyr	Leu	Ala	Val	Pro	Val	Leu	Leu	Tyr	Ala	Gly		
		610				615					620						
gaa	aga	act	ctt	aga	ttc	ttc	cgg	tca	ggc	ttg	tac	act	gtc	cgg	ctt	1920	
Glu	Arg	Thr	Leu	Arg	Phe	Phe	Arg	Ser	Gly	Leu	Tyr	Thr	Val	Arg	Leu		
625				630					635					640			
ctg	aaa	gta	gca	ata	tat	cct	gga	aat	gtc	ctc	act	cta	caa	atg	tct	1968	
Leu	Lys	Val	Ala	Ile	Tyr	Pro	Gly	Asn	Val	Leu	Thr	Leu	Gln	Met	Ser		
			645					650						655			
aag	cct	cct	caa	ttt	cga	tac	aaa	agt	gga	caa	tat	atg	ttt	gtc	cag	2016	
Lys	Pro	Pro	Gln	Phe	Arg	Tyr	Lys	Ser	Gly	Gln	Tyr	Met	Phe	Val	Gln		
			660					665					670				
tgt	cca	gct	gtt	tct	cca	ttc	gag	tgg	cat	cca	ttt	tcc	att	act	tca	2064	
Cys	Pro	Ala	Val	Ser	Pro	Phe	Glu	Trp	His	Pro	Phe	Ser	Ile	Thr	Ser		
		675					680					685					
gct	cct	ggg	gat	gac	tac	ttg	agc	att	cac	atc	cgg	caa	ctt	ggg	gac	2112	
Ala	Pro	Gly	Asp	Asp	Tyr	Leu	Ser	Ile	His	Ile	Arg	Gln	Leu	Gly	Asp		
		690				695					700						
tgg	act	caa	gaa	ctc	aag	cgg	gtc	ttt	tct	gag	gct	tgc	gag	cgg	cca	2160	
Trp	Thr	Gln	Glu	Leu	Lys	Arg	Val	Phe	Ser	Glu	Ala	Cys	Glu	Arg	Pro		
705				710					715					720			
gag	gct	gga	aag	agt	ggc	ctg	ctc	aga	gct	gac	gaa	aac	act	aag	aaa	2208	
Glu	Ala	Gly	Lys	Ser	Gly	Leu	Leu	Arg	Ala	Asp	Glu	Asn	Thr	Lys	Lys		
			725					730						735			
agt	ttg	cca	aag	cta	tta	ata	gat	gga	cct	tac	gga	gct	cca	gca	caa	2256	
Ser	Leu	Pro	Lys	Leu	Leu	Ile	Asp	Gly	Pro	Tyr	Gly	Ala	Pro	Ala	Gln		
		740						745					750				
gat	tac	cga	aaa	tat	gat	gtc	ttg	ctg	ctt	gtt	ggg	ctt	ggc	att	gga	2304	
Asp	Tyr	Arg	Lys	Tyr	Asp	Val	Leu	Leu	Val	Gly	Leu	Gly	Ile	Gly			
		755					760					765					
gca	acg	ccg	ttc	ata	agt	atc	ctg	aaa	gac	ttg	ctc	gtt	aac	atc	gtg	2352	
Ala	Thr	Pro	Phe	Ile	Ser	Ile	Leu	Lys	Asp	Leu	Leu	Val	Asn	Ile	Val		
		770				775						780					
aaa	atg	gag	gag	caa	gca	gat	tta	gcc	tca	gat	ttc	agt	ggg	aac	tca	2400	
Lys	Met	Glu	Glu	Gln	Ala	Asp	Leu	Ala	Ser	Asp	Phe	Ser	Gly	Asn	Ser		

785		790		795		800	
gac atg agc gtt gcg aca agt gaa caa cca gct ctc aac aag att tct	2448						
Asp Met Ser Val Ala Thr Ser Glu Gln Pro Ala Leu Asn Lys Ile Ser							
		805		810		815	
ctg aaa agg aga aag agc act cta aga acc aca aat gca tat ttt tat	2496						
Leu Lys Arg Arg Lys Ser Thr Leu Arg Thr Thr Asn Ala Tyr Phe Tyr							
		820		825		830	
tgg gtg acc cgg gag caa gga tca ttt gat tgg ttc aaa ggc gtt atg	2544						
Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly Val Met							
		835		840		845	
aac gaa gtg gct gaa ctt gat caa agg ggg gtc atc gag atg cat aac	2592						
Asn Glu Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met His Asn							
		850		855		860	
tac ttg acg agt gtt tat gag gaa ggg gat gct cgt tca gct ctc att	2640						
Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu Ile							
		865		870		875	
acc atg gtc cag gca ctt aac cat gct aag aat ggg gtt gat att gta	2688						
Thr Met Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp Ile Val							
		885		890		895	
tca ggc acc agg gtg agg aca cat ttt gct agg cca aat tgg aag aaa	2736						
Ser Gly Thr Arg Val Arg Thr His Phe Ala Arg Pro Asn Trp Lys Lys							
		900		905		910	
gta ttt tcc aag acc tta acc aag cat gca aat gca aga ata ggg gtt	2784						
Val Phe Ser Lys Thr Leu Thr Lys His Ala Asn Ala Arg Ile Gly Val							
		915		920		925	
ttc tac tgt ggt gca ccc gta tta gca aaa gaa ctc agc aaa ctc tgc	2832						
Phe Tyr Cys Gly Ala Pro Val Leu Ala Lys Glu Leu Ser Lys Leu Cys							
		930		935		940	
aaa gag tat aat caa aag ggt gca aca aag ttc gag ttt cac aaa gaa	2880						
Lys Glu Tyr Asn Gln Lys Gly Ala Thr Lys Phe Glu Phe His Lys Glu							
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cat ttt tag	2889						
His Phe							

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<211> 962

<212> PRT

<213> Nicotiana tabacum

<400> 6

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Gly Tyr Asn Ser Gly Phe Ala Ser Glu Glu Phe Val Glu Val Thr Leu	
35 40 45	
Asp Leu Gln Asp Asp Asp Thr Ile Ile Leu Arg Ser Val Glu Pro Ala	
50 55 60	
Thr Val Ile Asn Ile Asp Ala Pro Asp Leu Pro Ala Gly Val Gly Ile	
65 70 75 80	
Ser Gly Val Ser Ile Glu Thr Pro Thr Ser Ala Ser Val Ser Glu Ser	
85 90 95	
Arg Ser Pro Thr Ile Arg Arg Ser Ser Ser Lys Leu Arg Gln Phe	
100 105 110	
Ser Gln Glu Leu Lys Ala Glu Ala Val Ala Lys Ala Arg Gln Phe Ser	
115 120 125	
Gln Glu Leu Lys Ala Glu Leu Arg Arg Phe Ser Trp Ser His Gly His	
130 135 140	
Ala Ser Arg Ala Phe Ser Pro Ser Ser Phe Phe Gln Asn Ala Val Val	
145 150 155 160	
Gly Thr Gly Asn Gly Val Asp Ser Ala Leu Ala Ala Arg Ala Leu Arg	

				165					170					175	
Arg	Gln	Arg	Ala	Gln	Leu	Asp	Arg	Thr	Arg	Ser	Ser	Ala	His	Arg	Ala
			180					185					190		
Leu	Arg	Arg	Leu	Lys	Phe	Ile	Ser	Asn	Asn	Lys	Thr	Asn	Gly	Trp	Asn
		195					200					205			
Glu	Val	Glu	Asn	Asn	Phe	Ser	Lys	Leu	Ala	Lys	Asp	Gly	Tyr	Leu	Tyr
	210					215					220				
Arg	Ser	Asp	Phe	Ala	Gln	Cys	Ile	Gly	Met	Lys	Asp	Ser	Lys	Glu	Phe
225				230					235					240	
Ala	Leu	Glu	Leu	Phe	Asp	Ala	Leu	Ser	Arg	Arg	Arg	Arg	Leu	Lys	Val
			245						250					255	
Asp	Lys	Ile	Ser	Lys	Glu	Glu	Leu	Tyr	Glu	Tyr	Trp	Ser	Gln	Ile	Thr
			260					265					270		
Asp	Gln	Ser	Phe	Asp	Ser	Arg	Leu	Gln	Ile	Ser	Phe	Asp	Met	Val	Asp
		275					280					285			
Lys	Asn	Glu	Asp	Gly	Arg	Ile	Ala	Glu	Glu	Glu	Val	Lys	Glu	Ile	Ile
	290					295					300				
Met	Leu	Ser	Ala	Ser	Ala	Asn	Lys	Leu	Ser	Arg	Leu	Lys	Glu	Gln	Ala
305					310					315					320
Glu	Glu	Tyr	Ala	Ala	Leu	Ile	Met	Glu	Glu	Leu	Asp	Pro	Glu	Arg	Leu
			325					330					335		
Gly	Tyr	Ile	Glu	Leu	Trp	Gln	Leu	Glu	Thr	Leu	Leu	Leu	Gln	Lys	Asp
			340					345					350		
Thr	Tyr	Leu	Asn	Tyr	Ser	Gln	Ala	Leu	Ser	Tyr	Thr	Ser	Gln	Ala	Leu
		355					360					365			
Ser	Gln	Asn	Leu	His	Gly	Leu	Arg	Lys	Lys	Ser	Pro	Ile	Lys	Arg	Met
	370				375						380				
Ser	Thr	Lys	Leu	Val	Tyr	Ser	Leu	Gln	Glu	Asn	Trp	Lys	Arg	Ile	Trp
385					390					395					400
Val	Leu	Thr	Leu	Trp	Ile	Leu	Ile	Met	Ile	Gly	Leu	Phe	Leu	Trp	Lys
			405						410				415		
Phe	Tyr	Gln	Tyr	Lys	Asn	Lys	Ser	Ala	Phe	Arg	Val	Met	Gly	Tyr	Cys
			420					425					430		
Leu	Val	Thr	Ala	Lys	Gly	Ala	Ala	Glu	Thr	Leu	Lys	Phe	Asn	Met	Ala
		435					440					445			
Leu	Ile	Leu	Leu	Pro	Val	Cys	Arg	Asn	Thr	Ile	Thr	Trp	Leu	Arg	Ser
	450				455						460				
Thr	Lys	Leu	Ser	His	Phe	Val	Pro	Phe	Asp	Asp	Asn	Ile	Asn	Phe	His
465					470				475						480
Lys	Thr	Val	Ala	Ala	Ile	Val	Thr	Gly	Ile	Ile	Leu	His	Ala	Gly	
			485					490					495		
Asn	His	Leu	Val	Cys	Asp	Phe	Pro	Arg	Leu	Ile	His	Ala	Asp	Asp	Gln
			500					505					510		
Asp	Tyr	Gln	Ser	Phe	Leu	Ser	Asn	Asp	Phe	Gly	Gln	Ser	Lys	Pro	Gly

Lys Pro Pro Gln Phe Arg Tyr Lys Ser Gly Gln Tyr Met Phe Val Gln
 660 665 670
 Cys Pro Ala Val Ser Pro Phe Glu Trp His Pro Phe Ser Ile Thr Ser
 675 680 685
 Ala Pro Gly Asp Asp Tyr Leu Ser Ile His Ile Arg Gln Leu Gly Asp
 690 695 700
 Trp Thr Gln Glu Leu Lys Arg Val Phe Ser Glu Ala Cys Glu Arg Pro
 705 710 715 720
 Glu Ala Gly Lys Ser Gly Leu Leu Arg Ala Asp Glu Asn Thr Lys Lys
 725 730 735
 Ser Leu Pro Lys Leu Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala Gln
 740 745 750
 Asp Tyr Arg Lys Tyr Asp Val Leu Leu Leu Val Gly Leu Gly Ile Gly
 755 760 765
 Ala Thr Pro Phe Ile Ser Ile Leu Lys Asp Leu Leu Val Asn Ile Val
 770 775 780
 Lys Met Glu Glu Gln Ala Asp Leu Ala Ser Asp Phe Ser Gly Asn Ser
 785 790 795 800
 Asp Met Ser Val Ala Thr Ser Glu Gln Pro Ala Leu Asn Lys Ile Ser
 805 810 815
 Leu Lys Arg Arg Lys Ser Thr Leu Arg Thr Thr Asn Ala Tyr Phe Tyr
 820 825 830
 Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly Val Met
 835 840 845
 Asn Glu Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met His Asn
 850 855 860
 Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu Ile
 865 870 875 880
 Thr Met Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp Ile Val
 885 890 895
 Ser Gly Thr Arg Val Arg Thr His Phe Ala Arg Pro Asn Trp Lys Lys
 900 905 910
 Val Phe Ser Lys Thr Leu Thr Lys His Ala Asn Ala Arg Ile Gly Val
 915 920 925
 Phe Tyr Cys Gly Ala Pro Val Leu Ala Lys Glu Leu Ser Lys Leu Cys
 930 935 940
 Lys Glu Tyr Asn Gln Lys Gly Ala Thr Lys Phe Glu Phe His Lys Glu
 945 950 955 960
 His Phe

<210> 7

<211> 3733

<212> DNA

<213> Solanum tuberosum

<220>

<221> CDS

<222> (92)..(2980)

<223> coding for NADPH oxidase

<400> 7

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 Met Arg Gly Leu Pro Gly His
 1 5
 gaa cgc cgg tgg acg tcg gat acg gta tct tcc ggc aag gat tta agt 160
 Glu Arg Arg Trp Thr Ser Asp Thr Val Ser Ser Gly Lys Asp Leu Ser
 10 15 20
 ggt gag tca tcg ccg gga act gat tcc ggg aat att tcc ggt ttt gct 208
 Gly Glu Ser Ser Pro Gly Thr Asp Ser Gly Asn Ile Ser Gly Phe Ala

25	30	35	
tcc gag gag ttt gtt gaa gtt ata ctt gat ctt cag gat gat gat acg			256
Ser Glu Glu Phe Val Glu Val Ile Leu Asp Leu Gln Asp Asp Asp Thr			
40	45	50	55
att att cta cgg agc gtt gaa ccg gct act gta atc aac att gat gct			304
Ile Ile Leu Arg Ser Val Glu Pro Ala Thr Val Ile Asn Ile Asp Ala			
60	65	70	
tct gat cct gct acc gga gtc ggt att ggt gga gta tcg att gaa act			352
Ser Asp Pro Ala Thr Gly Val Gly Ile Gly Gly Val Ser Ile Glu Thr			
75	80	85	
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Pro Ala Ser Leu Thr Ser Thr Ser Gly Thr Arg Ser Pro Thr Met Arg			
90	95	100	
cgg agt aca tcg aat aaa tta cgt cag ttt tca cag gag ttg aaa gct			448
Arg Ser Thr Ser Asn Lys Leu Arg Gln Phe Ser Gln Glu Leu Lys Ala			
105	110	115	
gag gct gtc gcg aaa gcg aag cat ttc tcg caa gag ctt aaa gcg gag			496
Glu Ala Val Ala Lys Ala Lys His Phe Ser Gln Glu Leu Lys Ala Glu			
120	125	130	135
cta agg aga ttc tca tgg agc cat gga cat gcg tct cgc act ttt tcg			544
Leu Arg Arg Phe Ser Trp Ser His Gly His Ala Ser Arg Thr Phe Ser			
140	145	150	
ccg gcg tcg ttt ttc caa aac gcc gtc gtc ggt aca ggc aac ggt gta			592
Pro Ala Ser Phe Phe Gln Asn Ala Val Val Gly Thr Gly Asn Gly Val			
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gat tcg gct tta gca gct cga gca tta cga cgg cag cgc gct cag ctc			640
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Asp Arg Thr Arg Ser Ser Ala His Lys Ala Leu Arg Gly Leu Lys Phe			
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Ile Ser Asn Asn Lys Thr Asn Gly Trp Asn Glu Val Glu Asn Asn Phe			
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Cys Ile Gly Met Lys Asp Ser Lys Glu Phe Ala Leu Glu Leu Phe Asp			
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Ala Leu Ser Arg Arg Arg Arg Leu Lys Val Asp Lys Ile Ser Lys Glu			
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Glu Leu Tyr Glu Tyr Trp Ser Gln Ile Thr Asp Gln Ser Phe Asp Ser			
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Arg Leu Gln Ile Phe Phe Asp Met Val Asp Lys Asn Glu Asp Gly Arg			
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Ile Met Glu Glu Leu Asp Pro Glu Arg Leu Gly Tyr Ile Glu Leu Trp			
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Gln Leu Glu Thr Leu Leu Gln Lys Asp Thr Tyr Leu Asn Tyr Ser			
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Phe Pro Lys Leu Ile His Ala Asn Asn Thr Asn Tyr Gln Lys Tyr Leu	
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Val Asn Asp Phe Gly Pro Ser Gln Pro Gln Tyr Ile Asp Leu Val Lys	
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Arg	Val	Phe	Ser	Glu	Ala	Cys	Glu	Gln	Pro	Glu	Ala	Gly	Lys	Ser	Gly	
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Ala Leu Arg Gly Leu Lys Phe Ile Ser Asn Asn Lys Thr Asn Gly Trp
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Ala Glu Glu Tyr Ala Ala Leu Ile Met Glu Glu Leu Asp Pro Glu Arg
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Leu Gly Tyr Ile Glu Leu Trp Gln Leu Glu Thr Leu Leu Leu Gln Lys
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	Ile	Thr	Asp	Gln	Ser	Phe	Asp	Ser	Arg	Leu	Gln	Ile	Phe	Phe	Asp	Met	
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	Val	Asp	Lys	Asn	Glu	Asp	Gly	Arg	Ile	Gly	Glu	Glu	Glu	Val	Lys	Glu	
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	Arg	Leu	Gly	Tyr	Ile	Glu	Leu	Trp	Gln	Leu	Glu	Thr	Leu	Leu	Leu	Gln	
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	Lys	Asp	Thr	Tyr	Leu	Asn	Tyr	Ser	Gln	Ala	Leu	Ser	Tyr	Thr	Ser	Gln	
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	Ala	Leu	Ser	Gln	Asn	Leu	Gln	Gly	Leu	Arg	Lys	Arg	Ser	Pro	Ile	Arg	
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	Arg	Met	Ser	Thr	Lys	Leu	Val	Tyr	Ser	Leu	Gln	Glu	Asn	Trp	Lys	Arg	
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	Ile	Trp	Val	Leu	Val	Leu	Trp	Ile	Leu	Ile	Met	Ile	Gly	Leu	Phe	Leu	
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	Trp	Lys	Phe	Tyr	Gln	Tyr	Lys	Gln	Lys	Ser	Ala	Phe	Gln	Val	Met	Gly	
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	tat	tgc	ctt	cta	aca	gct	aag	ggg	gct	gct	gag	act	ctc	aag	ttc	aac	1564
	Tyr	Cys	Leu	Leu	Thr	Ala	Lys	Gly	Ala	Ala	Glu	Thr	Leu	Lys	Phe	Asn	
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	Met	Ala	Leu	Ile	Leu	Leu	Pro	Val	Cys	Arg	Asn	Thr	Ile	Thr	Phe	Leu	
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	Arg	Ser	Thr	Lys	Leu	Ser	Cys	Phe	Val	Pro	Phe	Asp	Asp	Asn	Ile	Asn	
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Phe	His	Lys	Thr	Val	Ala	Ala	Ala	Ile	Val	Thr	Gly	Ile	Ile	Leu	His	
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Ala	Gly	Asn	His	Leu	Val	Cys	Asp	Phe	Pro	Lys	Leu	Ile	His	Ala	Asn	
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Ser	Thr	Asn	Tyr	Gln	Lys	Tyr	Leu	Val	Asn	Asp	Phe	Gly	Pro	Ser	Gln	
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Pro	Gln	Tyr	Ile	Asp	Leu	Val	Lys	Gly	Val	Glu	Gly	Val	Thr	Gly	Ile	
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Gly	Phe	Asn	Ala	Phe	Trp	Tyr	Ser	His	His	Leu	Leu	Ile	Ile	Val	Tyr	
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Ile	Val	Leu	Ile	Ile	His	Gly	Thr	Phe	Leu	Tyr	Leu	Val	His	Asn	Trp	
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Tyr	Ser	Lys	Thr	Thr	Trp	Met	Tyr	Ile	Ala	Val	Pro	Val	Leu	Leu	Tyr	
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gca	ggg	gaa	aga	act	ctt	aga	ttc	ttc	cga	tca	ggc	tta	tac	agt	gtc	2140
Ala	Gly	Glu	Arg	Thr	Leu	Arg	Phe	Phe	Arg	Ser	Gly	Leu	Tyr	Ser	Val	
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Arg	Leu	Leu	Lys	Val	Ala	Ile	Tyr	Pro	Gly	Asn	Val	Leu	Thr	Leu	Gln	
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Met	Ser	Lys	Pro	Pro	Gln	Phe	Arg	Tyr	Lys	Ser	Gly	Gln	Tyr	Met	Phe	
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gtc	cag	tgt	cca	gct	gtt	tct	cca	ttc	gag	tgg	cat	cca	ttt	tcc	att	2284
Val	Gln	Cys	Pro	Ala	Val	Ser	Pro	Phe	Glu	Trp	His	Pro	Phe	Ser	Ile	
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Gln	Pro	Glu	Ala	Gly	Lys	Ser	Gly	Leu	Leu	Arg	Ala	Asp	Glu	Asn	Thr	
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Lys	Thr	Ser	Leu	Pro	Lys	Leu	Leu	Ile	Asp	Gly	Pro	Tyr	Gly	Ala	Pro	
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Ala	Gln	Asp	Tyr	Arg	Lys	Tyr	Asp	Val	Leu	Leu	Leu	Val	Gly	Leu	Gly	
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Ile	Gly	Ala	Thr	Pro	Phe	Ile	Ser	Ile	Leu	Lys	Asp	Leu	Leu	Lys	Asn	
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Ile	Val	Ala	Met	Glu	Glu	Gln	Ala	Asp	Leu	Val	Ser	Asp	Phe	Ser	Gly	
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aac	tcg	gac	atg	agt	gct	gca	aca	agt	gaa	caa	cca	gct	ctc	aac	aag	2668

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att tct cca aaa aag aga aag agt act cta aaa acc aca aat gca tat 2716
Ile Ser Pro Lys Lys Arg Lys Ser Thr Leu Lys Thr Thr Asn Ala Tyr
      845      850      855
ttt tat tgg gtg acc cgg gag caa gga tca ttt gat tgg ttc aaa ggt 2764
Phe Tyr Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly
      860      865      870
gtt atg aat gaa gtg gct gaa ctt gat caa agg ggt gtc atc gag atg 2812
Val Met Asn Glu Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met
      875      880      885
cat aac tac ttg acg agt gtt tat gag gaa ggg gat gca cgt tca gct 2860
His Asn Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala
      890      895      900      905
ctc att acc atg gtc cag gca ctt aac cat gct aag aat ggg gtt gat 2908
Leu Ile Thr Met Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp
      910      915      920
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Ile Val Ser Gly Thr Ser Val Arg Thr His Phe Ala Arg Pro Asn Trp
      925      930      935
agg aaa gta ttt tcc aag acc tta acc aag cat gca aat gca aga ata 3004
Arg Lys Val Phe Ser Lys Thr Leu Thr Lys His Ala Asn Ala Arg Ile
      940      945      950
gga gtt ttc tac tgt ggt gca ccc ata tta gct aaa gaa ctc agc caa 3052
Gly Val Phe Tyr Cys Gly Ala Pro Ile Leu Ala Lys Glu Leu Ser Gln
      955      960      965
ctc tgc aaa gag ttt aac caa aag ggc aca aca aag ttc gag ttt cac 3100
Leu Cys Lys Glu Phe Asn Gln Lys Gly Thr Thr Lys Phe Glu Phe His
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aaa gaa cat ttt tagaagggcc tggagtatga ttaatcttgc atcaacggta 3152
Lys Glu His Phe
cacacatcta tcttcggtac cttatattgat tattctactg aagagataac attagtaagg 3212
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Asp Leu Gln Asp Asp Asp Thr Ile Ile Leu Arg Ser Val Glu Pro Ala
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Thr Val Ile Asn Ile Asp Gly Ser Asp Pro Ala Ser Gly Val Gly Ile
  65      70      75      80
Gly Gly Ala Ser Ile Glu Thr Pro Ala Ser Val Thr Ser Thr Ser Glu
  85      90      95
Thr Arg Ser Pro Met Met Arg Arg Ser Thr Ser Asn Lys Phe Arg Gln
  100      105      110
Phe Ser Gln Glu Leu Lys Ala Glu Ala Val Ala Lys Ala Lys His Phe
  115      120      125
Ser Gln Glu Leu Lys Ala Glu Leu Arg Arg Phe Ser Trp Ser His Gly
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His Ala Ser Arg Ala Phe Ser Pro Ala Ser Phe Phe Gln Asn Ala Val
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Ala	Leu	Arg	Gly	Leu	Lys	Phe	Ile	Ser	Asn	Asn	Lys	Thr	Asn	Gly	Trp		
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Ser	Leu	Gln	Phe	Asn	Tyr	Arg	Leu	Ile	Thr	Leu	Ile	Leu	Ile	Asn	Tyr		
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Leu	Val	Lys	Gly	Met	Lys	Asp	Ser	Lys	Glu	Phe	Ala	Leu	Glu	Leu	Phe		
			260					265					270				
Asp	Ala	Leu	Ser	Arg	Arg	Arg	Arg	Leu	Lys	Val	Asp	Lys	Ile	Ser	Gln		
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Glu	Glu	Leu	Tyr	Glu	Tyr	Trp	Ser	Gln	Ile	Thr	Asp	Gln	Ser	Phe	Asp		
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Ser	Arg	Leu	Gln	Ile	Phe	Phe	Asp	Met	Val	Asp	Lys	Asn	Glu	Asp	Gly		
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Trp	Gln	Leu	Glu	Thr	Leu	Leu	Gln	Lys	Asp	Thr	Tyr	Leu	Asn	Tyr			
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Ser	Gln	Ala	Leu	Ser	Tyr	Thr	Ser	Gln	Ala	Leu	Ser	Gln	Asn	Leu	Gln		
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Gly	Leu	Arg	Lys	Arg	Ser	Pro	Ile	Arg	Arg	Met	Ser	Thr	Lys	Leu	Val		
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Tyr	Ser	Leu	Gln	Glu	Asn	Trp	Lys	Arg	Ile	Trp	Val	Leu	Val	Leu	Trp		
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Ile	Leu	Ile	Met	Ile	Gly	Leu	Phe	Leu	Trp	Lys	Phe	Tyr	Gln	Tyr	Lys		
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Gln	Lys	Ser	Ala	Phe	Gln	Val	Met	Gly	Tyr	Cys	Leu	Leu	Thr	Ala	Lys		
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Gly	Ala	Ala	Glu	Thr	Leu	Lys	Phe	Asn	Met	Ala	Leu	Ile	Leu	Leu	Pro		
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Phe	Val	Pro	Phe	Asp	Asp	Asn	Ile	Asn	Phe	His	Lys	Thr	Val	Ala	Ala		
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Ala	Ile	Val	Thr	Gly	Ile	Ile	Leu	His	Ala	Gly	Asn	His	Leu	Val	Cys		
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Asp	Phe	Pro	Lys	Leu	Ile	His	Ala	Asn	Ser	Thr	Asn	Tyr	Gln	Lys	Tyr		
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Leu	Val	Asn	Asp	Phe	Gly	Pro	Ser	Gln	Pro	Gln	Tyr	Ile	Asp	Leu	Val		
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Lys	Gly	Val	Glu	Gly	Val	Thr	Gly	Ile	Val	Met	Val	Ile	Leu	Met	Ala		
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Ser	His	His	Leu	Leu	Ile	Ile	Val	Tyr	Ile	Val	Leu	Ile	Ile	His	Gly		
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Ser Phe Asp	Ser Val	Ser Ala	Gly Lys	Thr Ala	Val Gly	Ser Ala	Ser								
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Val Glu Pro Ala Thr Ala Ile Asn Val Ile Gly Asp Ile Ser Asp Asp	
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Asn Thr Gly Ile Met Thr Pro Val Ser Ile Ser Arg Ser Pro Thr Met	
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Lys Arg Thr Ser Ser Asn Arg Phe Arg Gln Phe Ser Gln Glu Leu Lys	
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Ala Glu Ala Val Ala Lys Ala Lys Gln Leu Ser Gln Glu Leu Lys Arg	
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Phe Ser Trp Ser Arg Ser Phe Ser Gly Asn Leu Thr Thr Thr Ser Thr	
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Ile	Met	Ile	Gly	Leu	Phe	Leu	Trp	Lys	Phe	Phe	Gln	Tyr	Lys	Gln	Lys	
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Asp	Ala	Phe	His	Val	Met	Gly	Tyr	Cys	Leu	Leu	Thr	Ala	Lys	Gly	Ala	
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gct	gaa	aca	ctt	aaa	ttc	aac	atg	gct	cta	ata	ctt	ttc	cca	gtt	tgc	1346
Ala	Glu	Thr	Leu	Lys	Phe	Asn	Met	Ala	Leu	Ile	Leu	Phe	Pro	Val	Cys	
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Arg	Asn	Thr	Ile	Thr	Trp	Leu	Arg	Ser	Thr	Arg	Leu	Ser	Tyr	Phe	Val	
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cct	ttt	gat	gat	aat	atc	aac	ttc	cac	aag	aca	att	gct	gga	gcc	att	1442
Pro	Phe	Asp	Asp	Asn	Ile	Asn	Phe	His	Lys	Thr	Ile	Ala	Gly	Ala	Ile	
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Val	Val	Ala	Val	Ile	Leu	His	Ile	Gly	Asp	His	Leu	Ala	Cys	Asp	Phe	
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Pro	Arg	Ile	Val	Arg	Ala	Thr	Glu	Tyr	Asp	Tyr	Asn	Arg	Tyr	Leu	Phe	
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Pro	Glu	Gly	Ile	Thr	Gly	Ile	Leu	Met	Val	Ile	Leu	Met	Ile	Ile	Ser	
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Phe	Thr	Leu	Ala	Thr	Arg	Trp	Phe	Arg	Arg	Asn	Leu	Val	Lys	Leu	Pro	
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Arg	Ser	Gly	Ser	Tyr	Ser	Val	Arg	Leu	Leu	Lys	Val	Ala	Ile	Tyr	Pro	
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Gly	Asn	Val	Leu	Thr	Leu	Gln	Met	Ser	Lys	Pro	Thr	Gln	Phe	Arg	Tyr	
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Lys	Ser	Gly	Gln	Tyr	Met	Phe	Val	Gln	Cys	Pro	Ala	Val	Ser	Pro	Phe	
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gag	tgg	cat	cca	ttc	tca	att	act	tcc	gca	cct	gaa	gat	gat	tat	atc	2066
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gta ttc tct gaa gtt tgt gag cca ccg gtt ggc ggt aaa agc gga ctt 2162
Val Phe Ser Glu Val Cys Glu Pro Pro Val Gly Gly Lys Ser Gly Leu
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ctc aga gcc gac gaa aca aca aag aaa agt ttg cca aag cta ttg ata 2210
Leu Arg Ala Asp Glu Thr Thr Lys Lys Ser Leu Pro Lys Leu Leu Ile
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gat gga ccg tac ggt gca cca gca caa gat tat agg aaa tat gat gtt 2258
Asp Gly Pro Tyr Gly Ala Pro Ala Gln Asp Tyr Arg Lys Tyr Asp Val
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ctc tta tta gtt ggt ctt ggc att ggt gca act cca ttt atc agt atc 2306
Leu Leu Leu Val Gly Leu Gly Ile Gly Ala Thr Pro Phe Ile Ser Ile
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Leu Lys Asp Leu Leu Asn Asn Ile Val Lys Met Glu Glu His Ala Asp
765      770      775      780
tcg atc tcg gat ttc agt aga tca tca gaa tac agc aca gga agc aac 2402
Ser Ile Ser Asp Phe Ser Arg Ser Ser Glu Tyr Ser Thr Gly Ser Asn
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ggt gac acg cca aga cga aag aga ata cta aaa acc aca aat gct tat 2450
Gly Asp Thr Pro Arg Arg Lys Arg Ile Leu Lys Thr Thr Asn Ala Tyr
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Val Met Asn Glu Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met
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cat aac tat tta aca agt gtg tat gaa gaa ggt gat gct cgt tct gct 2594
His Asn Tyr Leu Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala
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ctc att aca atg gtt caa gct ctt aat cat gcc aaa aat ggt gtc gac 2642
Leu Ile Thr Met Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp
      865      870      875
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Ile Val Ser Gly Thr Arg Val Arg Thr His Phe Ala Arg Pro Asn Trp
      880      885      890
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Lys Lys Val Leu Thr Lys Leu Ser Ser Lys His Cys Asn Ala Arg Thr
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Gly Val Phe Tyr Cys Gly Val Pro Val Leu Gly Lys Glu Leu Ser Lys
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cta tgc aac aca ttc aat caa aaa ggt tca acc aag ttt gaa ttt cac 2834
Leu Cys Asn Thr Phe Asn Gln Lys Gly Ser Thr Lys Phe Glu Phe His
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Lys Glu His Phe
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<213> Arabidopsis thaliana

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Asp Leu Gln Asp Asp Asp Thr Ile Val Leu Arg Ser Val Glu Pro Ala
 50      55      60
Thr Ala Ile Asn Val Ile Gly Asp Ile Ser Asp Asn Thr Gly Ile
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Met Thr Pro Val Ser Ile Ser Arg Ser Pro Thr Met Lys Arg Thr Ser
 85      90      95
Ser Asn Arg Phe Arg Gln Phe Ser Gln Glu Leu Lys Ala Glu Ala Val
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Ala Lys Ala Lys Gln Leu Ser Gln Glu Leu Lys Arg Phe Ser Trp Ser
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Arg Ser Phe Ser Gly Asn Leu Thr Thr Thr Ser Thr Ala Ala Asn Gln
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Ser Gly Gly Ala Gly Gly Gly Leu Val Asn Ser Ala Leu Glu Ala Arg
 145     150     155     160
Ala Leu Arg Lys Gln Arg Ala Gln Leu Asp Arg Thr Arg Ser Ser Ala
 165     170     175
Gln Arg Ala Leu Arg Gly Leu Arg Phe Ile Ser Asn Lys Gln Lys Asn
 180     185     190
Val Asp Gly Trp Asn Asp Val Gln Ser Asn Phe Glu Lys Phe Glu Lys
 195     200     205
Asn Gly Tyr Ile Tyr Arg Ser Asp Phe Ala Gln Cys Ile Gly Met Lys
 210     215     220
Asp Ser Lys Glu Phe Ala Leu Glu Leu Phe Asp Ala Leu Ser Arg Arg
 225     230     235     240
Arg Arg Leu Lys Val Glu Lys Ile Asn His Asp Glu Leu Tyr Glu Tyr
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Trp Ser Gln Ile Asn Asp Glu Ser Phe Asp Ser Arg Leu Gln Ile Phe
 260     265     270
Phe Asp Ile Val Asp Lys Asn Glu Asp Gly Arg Ile Thr Glu Glu Glu
 275     280     285
Val Lys Glu Ile Ile Met Leu Ser Ala Ser Ala Asn Lys Leu Ser Arg
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Leu Lys Glu Gln Ala Glu Glu Tyr Ala Ala Leu Ile Met Glu Glu Leu
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Asp Pro Glu Arg Leu Gly Tyr Ile Glu Leu Trp Gln Leu Glu Thr Leu
 325     330     335
Leu Leu Gln Lys Asp Thr Tyr Leu Asn Tyr Ser Gln Ala Leu Ser Tyr
 340     345     350
Thr Ser Gln Ala Leu Ser Gln Asn Leu Gln Gly Leu Arg Gly Lys Ser
 355     360     365
Arg Ile His Arg Met Ser Ser Asp Phe Val Tyr Ile Met Gln Glu Asn
 370     375     380
Trp Lys Arg Ile Trp Val Leu Ser Leu Trp Ile Met Ile Met Ile Gly
 385     390     395     400
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Val Met Gly Tyr Cys Leu Leu Thr Ala Lys Gly Ala Ala Glu Thr Leu
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Lys Phe Asn Met Ala Leu Ile Leu Phe Pro Val Cys Arg Asn Thr Ile
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Thr Trp Leu Arg Ser Thr Arg Leu Ser Tyr Phe Val Pro Phe Asp Asp
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Thr Gly Ile Leu Met Val Ile Leu Met Ile Ile Ser Phe Thr Leu Ala
      530      535      540
Thr Arg Trp Phe Arg Arg Asn Leu Val Lys Leu Pro Lys Pro Phe Asp
      545      550      555      560
Arg Leu Thr Gly Phe Asn Ala Phe Trp Tyr Ser His His Leu Phe Val
      565      570      575
Ile Val Tyr Ile Leu Leu Ile Leu His Gly Ile Phe Leu Tyr Phe Ala
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Lys Pro Trp Tyr Val Arg Thr Thr Trp Met Tyr Leu Ala Val Pro Val
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Leu Leu Tyr Gly Gly Glu Arg Thr Leu Arg Tyr Phe Arg Ser Gly Ser
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Tyr Ser Val Arg Leu Leu Lys Val Ala Ile Tyr Pro Gly Asn Val Leu
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Thr Leu Gln Met Ser Lys Pro Thr Gln Phe Arg Tyr Lys Ser Gly Gln
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Tyr Met Phe Val Gln Cys Pro Ala Val Ser Pro Phe Glu Trp His Pro
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Phe Ser Ile Thr Ser Ala Pro Glu Asp Asp Tyr Ile Ser Ile His Ile
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Arg Gln Leu Gly Asp Trp Thr Gln Glu Leu Lys Arg Val Phe Ser Glu
      690      695      700
Val Cys Glu Pro Pro Val Gly Gly Lys Ser Gly Leu Leu Arg Ala Asp
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Glu Thr Thr Lys Lys Ser Leu Pro Lys Leu Leu Ile Asp Gly Pro Tyr
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Gly Ala Pro Ala Gln Asp Tyr Arg Lys Tyr Asp Val Leu Leu Val
      740      745      750
Gly Leu Gly Ile Gly Ala Thr Pro Phe Ile Ser Ile Leu Lys Asp Leu
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Leu Asn Asn Ile Val Lys Met Glu Glu His Ala Asp Ser Ile Ser Asp
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Arg Arg Lys Arg Ile Leu Lys Thr Thr Asn Ala Tyr Phe Tyr Trp Val
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Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe Lys Gly Val Met Asn Glu
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Val Ala Glu Leu Asp Gln Arg Gly Val Ile Glu Met His Asn Tyr Leu
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Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu Ile Thr Met
      850      855      860
Val Gln Ala Leu Asn His Ala Lys Asn Gly Val Asp Ile Val Ser Gly
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Thr Arg Val Arg Thr His Phe Ala Arg Pro Asn Trp Lys Lys Val Leu
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Thr Lys Leu Ser Ser Lys His Cys Asn Ala Arg Thr Gly Val Phe Tyr
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Cys Gly Val Pro Val Leu Gly Lys Glu Leu Ser Lys Leu Cys Asn Thr
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ctt ggg att cta cga gga gct aac tcg gac acc aac tcg gac acg gag 218
Leu Gly Ile Leu Arg Gly Ala Asn Ser Asp Thr Asn Ser Asp Thr Glu
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agc atc gct agc gac cgt ggt gcc ttt agc ggt ccg ctt ggc cgg cct 266
Ser Ile Ala Ser Asp Arg Gly Ala Phe Ser Gly Pro Leu Gly Arg Pro
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aaa cgt gcg tcc aag aaa aac gca aga ttc gcc gac gat ctt ccc aag 314
Lys Arg Ala Ser Lys Lys Asn Ala Arg Phe Ala Asp Asp Leu Pro Lys
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Arg Ser Asn Ser Val Ala Gly Gly Arg Gly Asp Asp Asp Glu Tyr Val
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Glu Ile Thr Leu Asp Ile Arg Asp Asp Ser Val Ala Val His Ser Val
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Gln Gln Ala Ala Gly Gly Gly Gly His Leu Glu Asp Pro Glu Leu Ala
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ctt ctt acg aag aag act ctc gag agc agc ctc aac aac acc acc tcc 506
Leu Leu Thr Lys Lys Thr Leu Glu Ser Ser Leu Asn Asn Thr Thr Ser
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Leu Ser Phe Phe Arg Ser Thr Ser Ser Arg Ile Lys Asn Ala Ser Arg
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Glu Leu Arg Arg Val Phe Ser Arg Arg Pro Ser Pro Ala Val Arg Arg
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Phe Ile Ala Thr Lys Thr Ala Ala Trp Pro Ala Val Asp Gln Arg Phe
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gat aaa ctc tcc gct gat tcc aac ggc ctc tta ctc tct gcc aag ttt 746
Asp Lys Leu Ser Ala Asp Ser Asn Gly Leu Leu Leu Ser Ala Lys Phe
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Thr Lys Glu Gln Leu Arg Ile Phe Trp Glu Gln Ile Ser Asp Glu Ser
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	Met	Ile	Glu	Asn	Leu	Glu	Met	Leu	Leu	Leu	Gln	Ala	Pro	Asn	Gln	Ser	
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	Leu	Arg	Pro	Ala	Lys	Glu	Ser	Asn	Pro	Leu	Leu	Arg	Trp	Ser	Glu	Lys	
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	Leu	Pro	Val	Cys	Arg	Asn	Thr	Ile	Thr	Trp	Leu	Arg	Asn	Lys	Thr	Lys	
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	Ile	Ala	Ser	Gly	Ile	Val	Val	Gly	Val	Leu	Leu	His	Ala	Gly	Ala	His	
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Gln His Ala Lys Asn Gly Val Asp Val Ser Gly Thr Arg Val Lys	
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Ser His Phe Ala Lys Pro Asn Trp Arg Gln Val Tyr Lys Lys Ile Ala	
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Val Gln His Pro Gly Lys Arg Ile Gly Val Phe Tyr Cys Gly Met Pro	
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Gly Met Ile Lys Glu Leu Lys Asn Leu Ala Leu Asp Phe Ser Arg Lys	
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 Ser Val Ala Gly Gly Arg Gly Asp Asp Asp Glu Tyr Val Glu Ile Thr
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 Lys Leu Gln Val Phe Phe Asp Met Val Asp Lys Asp Glu Asp Gly Arg
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Cys	Arg	Asn	Thr	Ile	Thr	Trp	Leu	Arg	Asn	Lys	Thr	Lys	Leu	Gly Thr
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Asp	Phe	Pro	Arg	Leu	Ile	Ala	Ala	Asp	Glu	Asp	Thr	Tyr	Glu	Pro Met
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Phe	Glu	Trp	His	Pro	Phe	Ser	Ile	Thr	Ser	Ala	Pro	Gly	Asp	Asp Tyr
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Asp	Val	Val	Leu	Val	Gly	Leu	Gly	Ile	Gly	Ala	Thr	Pro	Met	Ile
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Ser	Ile	Leu	Lys	Asp	Ile	Ile	Asn	Asn	Met	Lys	Gly	Pro	Asp	Arg Asp
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Gly	Ile	Ile	Glu	Leu	His	Asn	Tyr	Cys	Thr	Ser	Val	Tyr	Glu	Glu Gly
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Asp	Ala	Arg	Val	Ala	Leu	Ile	Ala	Met	Leu	Gln	Ser	Leu	Gln	His Ala
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Lys	Asn	Gly	Val	Asp	Val	Val	Ser	Gly	Thr	Arg	Val	Lys	Ser	His Phe
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Trp Asp Gln Val Ala Asp Gln Ser Phe Asp Ser Arg Leu Gln Thr Phe	
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cca	atc	ata	ctc	tat	gct	agt	gaa	agg	ttg	att	agg	gca	ttc	agg	tca	2127
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Ala	Asp	Tyr	Leu	Gln	Gly	Glu	Asn	Asn	Pro	Asn	Phe	Pro	Arg	Val	Leu	
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Pro	Asn	Ile	Ala	Lys	Asn	Lys	Gly	Asn	Lys	Ser	Gly	Ser	Ala	Ser	Gly	
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gga	aat	aat	ttc	aat	aca	agg	aga	gca	tat	ttc	tat	tgg	gtt	act	aga	2751
Gly	Asn	Asn	Phe	Asn	Thr	Arg	Arg	Ala	Tyr	Phe	Tyr	Trp	Val	Thr	Arg	
				800					805						810	
gaa	caa	ggt	tca	ttt	gat	tgg	ttc	aaa	ggt	ata	atg	aat	gaa	gct	gct	2799
Glu	Gln	Gly	Ser	Phe	Asp	Trp	Phe	Lys	Gly	Ile	Met	Asn	Glu	Ala	Ala	

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      815              820              825
gaa atg gac cat aag gga gta att gaa atg cat aat tat tgt act agt 2847
Glu Met Asp His Lys Gly Val Ile Glu Met His Asn Tyr Cys Thr Ser
830              835              840
gtt tat gaa gaa ggt gat gct tct gct ctt att act atg ctt cag 2895
Val Tyr Glu Glu Gly Asp Ala Arg Ser Ala Leu Ile Thr Met Leu Gln
      850              855              860
tct ctt cac cat gcc aaa aat ggt gtt gac att gtc tct ggc acc aga 2943
Ser Leu His His Ala Lys Asn Gly Val Asp Ile Val Ser Gly Thr Arg
      865              870              875
gtt aag tca cat ttt gct aaa cct aat tgg cgt aat gtc tac aaa cgc 2991
Val Lys Ser His Phe Ala Lys Pro Asn Trp Arg Asn Val Tyr Lys Arg
      880              885              890
att gct ctc aac cac cct gag gct aaa gtt ggg gtc ttc tat tgt ggg 3039
Ile Ala Leu Asn His Pro Glu Ala Lys Val Gly Val Phe Tyr Cys Gly
      895              900              905
gca cca gca ctg acc aaa gaa cta aga caa cac gcc ttg gat ttt tca 3087
Ala Pro Ala Leu Thr Lys Glu Leu Arg Gln His Ala Leu Asp Phe Ser
910              915              920              925
cac aag aca tct acc aag ttt gat ttc cat aaa gaa aat ttt 3129
His Lys Thr Ser Thr Lys Phe Asp Phe His Lys Glu Asn Phe
      930              935
tgagcaaaga atagaccatt aagcagagca ttaaaatttc atcaaaacag ctaaggacac 3189
agggtgtttt atagaagtct accaactctc cctattgtgt acagataatg ttgcacttca 3249
agttgatata tagttgtggt tgtgatgcta gtatattaca aaataataag attattttta 3309
tttgtagtaa aaaaaaaaaa aaaaaaaaaa 3338

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<210> 16

<211> 939

<212> PRT

<213> Nicotiana tabacum

<220>

<221> misc_feature

<222> (547)..(547)

<223> The 'Xaa' at location 547 stands for Tyr, Cys, Ser, or Phe.

<400> 16

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Met Gln Asn Ser Glu Asn His His Pro His His Gln His His His Ser
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Asp Thr Glu Ile Ile Gly Asn Asp Arg Ala Ser Tyr Ser Gly Pro Leu
      20              25              30
Ser Gly Pro Leu Asn Lys Arg Gly Gly Lys Lys Ser Ala Arg Phe Asn
      35              40              45
Ile Pro Glu Ser Thr Asp Ile Gly Thr Ser Val Gly Thr Gly Gly Lys
      50              55              60
Ser Asn Asp Asp Ala Tyr Val Glu Ile Thr Leu Asp Val Arg Glu Asp
      65              70              75              80
Ser Val Ala Val His Ser Val Lys Thr Ala Gly Gly Asp Asp Val Glu
      85              90              95
Asp Pro Glu Leu Ala Leu Leu Ala Lys Gly Leu Glu Lys Lys Ser Thr
      100              105              110
Leu Gly Ser Ser Leu Val Arg Asn Ala Ser Ser Arg Ile Arg Gln Val
      115              120              125
Ser Gln Glu Leu Arg Arg Leu Ala Ser Leu Asn Lys Arg Pro Ile Pro
      130              135              140
Thr Gly Arg Phe Asp Arg Asn Lys Ser Ala Ala Ala His Ala Leu Lys
      145              150              155              160
Gly Leu Lys Phe Ile Ser Lys Thr Asp Gly Gly Ala Gly Trp Ala Ala
      165              170              175
Val Glu Lys Arg Phe Asp Glu Ile Thr Ala Ser Thr Thr Gly Leu Leu

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Thr Leu Gly Asp Trp Thr Arg Gln Leu Lys Thr Val Phe Ser Glu Val
 675 680 685
 Cys Gln Pro Pro Pro Asn Gly Lys Ser Gly Leu Leu Arg Ala Asp Tyr
 690 695 700
 Leu Gln Gly Glu Asn Asn Pro Asn Phe Pro Arg Val Leu Ile Asp Gly
 705 710 715 720
 Pro Tyr Gly Ala Pro Ala Gln Asp Tyr Lys Lys Tyr Glu Val Val Leu
 725 730 735
 Leu Val Gly Leu Gly Ile Gly Ala Thr Pro Met Ile Ser Ile Val Lys
 740 745 750
 Asp Ile Val Asn Asn Met Lys Ala Met Asp Glu Glu Glu Asn Ser Leu
 755 760 765
 Glu Asp Gly His Asn Asn Asn Met Ala Pro Asn Ser Ser Pro Asn Ile
 770 775 780
 Ala Lys Asn Lys Gly Asn Lys Ser Gly Ser Ala Ser Gly Gly Asn Asn
 785 790 795 800
 Phe Asn Thr Arg Arg Ala Tyr Phe Tyr Trp Val Thr Arg Glu Gln Gly
 805 810 815
 Ser Phe Asp Trp Phe Lys Gly Ile Met Asn Glu Ala Ala Glu Met Asp
 820 825 830
 His Lys Gly Val Ile Glu Met His Asn Tyr Cys Thr Ser Val Tyr Glu
 835 840 845
 Glu Gly Asp Ala Arg Ser Ala Leu Ile Thr Met Leu Gln Ser Leu His
 850 855 860
 His Ala Lys Asn Gly Val Asp Ile Val Ser Gly Thr Arg Val Lys Ser
 865 870 875 880
 His Phe Ala Lys Pro Asn Trp Arg Asn Val Tyr Lys Arg Ile Ala Leu
 885 890 895
 Asn His Pro Glu Ala Lys Val Gly Val Phe Tyr Cys Gly Ala Pro Ala
 900 905 910
 Leu Thr Lys Glu Leu Arg Gln His Ala Leu Asp Phe Ser His Lys Thr
 915 920 925
 Ser Thr Lys Phe Asp Phe His Lys Glu Asn Phe
 930 935

<210> 17

<211> 2532

<212> DNA

<213> Oryza sativa

<220>

<221> CDS

<222> (1)..(2529)

<223> coding for NADPH oxidase

<400> 17

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 1 5 10 15
 ggg ttg ccg agg ccg ccg ggg gcg ggg gcg ggt gcg gcg gcg ggc ggg 96
 Gly Leu Pro Arg Pro Pro Gly Ala Gly Ala Gly Ala Ala Gly Gly
 20 25 30
 ttc gcg cgg ggg ctg atg aag cag ccg tcg cgg ctg gcg tcc ggg gtg 144
 Phe Ala Arg Gly Leu Met Lys Gln Pro Ser Arg Leu Ala Ser Gly Val
 35 40 45
 agg cag ttc gcg tcg agg gtg tcg atg aag gtg ccg gag ggg gtg ggg 192
 Arg Gln Phe Ala Ser Arg Val Ser Met Lys Val Pro Glu Gly Val Gly
 50 55 60
 ggg atg ccg ccc ggt ggc ggg agg atg acg ccg atg cag tcc agc gcg 240
 Gly Met Arg Pro Gly Gly Gly Arg Met Thr Arg Met Gln Ser Ser Ala
 65 70 75 80

cag	gtg	ggg	ctc	cgg	ggg	ctc	cgc	ttc	ctc	gac	aag	acg	tcc	ggc	ggg	288
Gln	Val	Gly	Leu	Arg	Gly	Leu	Arg	Phe	Leu	Asp	Lys	Thr	Ser	Gly	Gly	
			85					90						95		
aag	gag	ggg	tgg	aag	tcc	gtc	gag	cgc	cgc	ttc	gac	gag	atg	aac	cgc	336
Lys	Glu	Gly	Trp	Lys	Ser	Val	Glu	Arg	Phe	Asp	Glu	Met	Asn	Arg		
			100					105					110			
aac	ggc	cgc	ctc	ccc	aag	gag	agc	ttc	ggc	aag	tgc	atc	ggc	atg	ggg	384
Asn	Gly	Arg	Leu	Pro	Lys	Glu	Ser	Phe	Gly	Lys	Cys	Ile	Gly	Met	Gly	
		115					120					125				
gac	tcc	aag	gag	ttc	gcc	ggc	gag	ctg	ttc	gtg	gcg	ctg	gcg	cgg	cgg	432
Asp	Ser	Lys	Glu	Phe	Ala	Gly	Glu	Leu	Phe	Val	Ala	Leu	Ala	Arg	Arg	
		130				135					140					
agg	aac	ctg	gag	ccg	gag	gac	ggc	atc	acc	aag	gag	cag	ctc	aag	gag	480
Arg	Asn	Leu	Glu	Pro	Glu	Asp	Gly	Ile	Thr	Lys	Glu	Gln	Leu	Lys	Glu	
					150			155							160	
ttc	tgg	gag	gag	atg	acc	gac	cag	aac	ttc	gac	tcg	cgg	ctt	cgc	att	528
Phe	Trp	Glu	Glu	Met	Thr	Asp	Gln	Asn	Phe	Asp	Ser	Arg	Leu	Arg	Ile	
				165				170					175			
ttc	ttt	gac	atg	tgc	gac	aag	aat	ggc	gat	ggg	atg	ctc	acg	gaa	gat	576
Phe	Phe	Asp	Met	Cys	Asp	Lys	Asn	Gly	Asp	Gly	Met	Leu	Thr	Glu	Asp	
		180						185					190			
gag	gtc	aag	gag	gtt	att	ata	ctg	agt	gcg	tcg	gcg	aac	aag	ctg	gcg	624
Glu	Val	Lys	Glu	Val	Ile	Ile	Leu	Ser	Ala	Ser	Ala	Asn	Lys	Leu	Ala	
		195					200					205				
aag	ctg	aag	gga	cac	gcg	gcg	acg	tac	gcg	tcg	ctg	atc	atg	gag	gag	672
Lys	Leu	Lys	Gly	His	Ala	Ala	Thr	Tyr	Ala	Ser	Leu	Ile	Met	Glu	Glu	
		210				215					220					
ctg	gac	ccg	gac	gac	cgc	ggg	tac	atc	gag	atc	tgg	cag	ctg	gag	acg	720
Leu	Asp	Pro	Asp	Asp	Arg	Gly	Tyr	Ile	Glu	Ile	Trp	Gln	Leu	Glu	Thr	
				230				235							240	
ctg	ctg	cgc	ggc	atg	gtg	agc	gcg	cag	gcg	gcg	ccg	gag	aag	atg	aag	768
Leu	Leu	Arg	Gly	Met	Val	Ser	Ala	Gln	Ala	Ala	Pro	Glu	Lys	Met	Lys	
				245				250						255		
cgg	acg	acg	tcg	agc	ctc	gcg	agg	acg	atg	atc	ccg	tcg	cgg	tac	cgg	816
Arg	Thr	Thr	Ser	Ser	Leu	Ala	Arg	Thr	Met	Ile	Pro	Ser	Arg	Tyr	Arg	
			260					265					270			
agc	ccg	ctg	aag	cgg	cac	gtg	tcc	agg	acg	gtg	gac	ttc	gtg	cac	gag	864
Ser	Pro	Leu	Lys	Arg	His	Val	Ser	Arg	Thr	Val	Asp	Phe	Val	His	Glu	
		275					280					285				
aac	tgg	aag	cgg	atc	tgg	ctc	gtc	gcg	ctg	tgg	ctc	gcc	gtc	aac	gtc	912
Asn	Trp	Lys	Arg	Ile	Trp	Leu	Val	Ala	Leu	Trp	Leu	Ala	Val	Asn	Val	
		290				295					300					
ggc	ctc	ttc	gcc	tac	aag	ttc	gag	cag	tac	gag	cgg	cgc	gcc	gcg	ttc	960
Gly	Leu	Phe	Ala	Tyr	Lys	Phe	Glu	Gln	Tyr	Glu	Arg	Arg	Ala	Ala	Phe	
				310					315						320	
cag	gtg	atg	ggc	cac	tgc	gtg	tgc	gtg	gcc	aag	ggc	gcc	gcc	gag	gtg	1008
Gln	Val	Met	Gly	His	Cys	Val	Cys	Val	Ala	Lys	Gly	Ala	Ala	Glu	Val	
				325				330						335		
ctc	aag	ctc	aac	atg	gcg	ctc	atc	ctc	ctc	ccc	gtg	tgc	cgg	aac	acg	1056
Leu	Lys	Leu	Asn	Met	Ala	Leu	Ile	Leu	Leu	Pro	Val	Cys	Arg	Asn	Thr	
			340					345					350			
ctc	acc	acg	ctc	agg	tcc	acg	gcg	ctc	agc	cac	gtc	atc	ccc	ttc	gac	1104
Leu	Thr	Thr	Leu	Arg	Ser	Thr	Ala	Leu	Ser	His	Val	Ile	Pro	Phe	Asp	
		355					360					365				
gac	aac	atc	aac	ttc	cac	aag	gtg	atc	gcg	gcg	acc	atc	gcc	gcc	gcc	1152
Asp	Asn	Ile	Asn	Phe	His	Lys	Val	Ile	Ala	Ala	Thr	Ile	Ala	Ala	Ala	
		370				375					380					
acc	gcc	gtc	cac	acg	ctg	gcg	cac	gtc	acc	tgc	gac	ttc	ccg	agg	ctg	1200
Thr	Ala	Val	His	Thr	Leu	Ala	His	Val	Thr	Cys	Asp	Phe	Pro	Arg	Leu	
					390					395					400	
atc	aac	tgc	ccc	agc	gac	aag	ttc	atg	gcg	acg	ctg	ggg	ccg	aac	ttc	1248

Ile	Asn	Cys	Pro	Ser	Asp	Lys	Phe	Met	Ala	Thr	Leu	Gly	Pro	Asn	Phe	
				405					410					415		
ggg	tac	agg	cag	ccg	acg	tac	gcc	gac	ctg	ctg	gag	agc	gcc	ccc	ggc	1296
Gly	Tyr	Arg	Gln	Pro	Thr	Tyr	Ala	Asp	Leu	Leu	Glu	Ser	Ala	Pro	Gly	
			420					425					430			
gtc	acc	ggc	atc	ctc	atg	atc	atc	atc	atg	tcc	ttc	tcc	ttc	acg	ctg	1344
Val	Thr	Gly	Ile	Leu	Met	Ile	Ile	Ile	Met	Ser	Phe	Ser	Phe	Thr	Leu	
		435					440					445				
gcc	acg	cac	tcc	ttc	cgc	cgg	agc	gtc	gtc	aag	ctg	ccg	tcg	ccg	ctg	1392
Ala	Thr	His	Ser	Phe	Arg	Arg	Ser	Val	Val	Lys	Leu	Pro	Ser	Pro	Leu	
	450					455					460					
cac	cac	ctc	gcc	ggc	ttc	aac	gcc	ttc	tgg	tac	gcg	cac	cac	ctc	ctg	1440
His	His	Leu	Ala	Gly	Phe	Asn	Ala	Phe	Trp	Tyr	Ala	His	His	Leu	Leu	
465					470					475					480	
gtg	ctc	gcc	tac	gtc	ctc	ctc	gtc	gtg	cac	tcc	tac	ttc	ata	ttc	ctc	1488
Val	Leu	Ala	Tyr	Val	Leu	Leu	Val	Val	His	Ser	Tyr	Phe	Ile	Phe	Leu	
				485					490					495		
acc	agg	gag	tgg	tac	aag	aaa	acg	aca	tgg	atg	tac	ctg	ata	gtc	cca	1536
Thr	Arg	Glu	Trp	Tyr	Lys	Lys	Thr	Thr	Trp	Met	Tyr	Leu	Ile	Val	Pro	
			500					505					510			
gtg	ctc	ttc	tat	gca	tgc	gag	aga	acg	atc	aga	aaa	gtt	cga	gag	aac	1584
Val	Leu	Phe	Tyr	Ala	Cys	Glu	Arg	Thr	Ile	Arg	Lys	Val	Arg	Glu	Asn	
		515					520					525				
aac	tac	cgc	gtg	agc	atc	gtc	aag	gca	gcg	att	tac	cca	gga	aat	gtg	1632
Asn	Tyr	Arg	Val	Ser	Ile	Val	Lys	Ala	Ala	Ile	Tyr	Pro	Gly	Asn	Val	
		530				535					540					
ctc	tct	ctt	cac	atg	aag	aag	ccg	ccg	ggt	ttc	aag	tac	aag	agc	ggg	1680
Leu	Ser	Leu	His	Met	Lys	Lys	Pro	Pro	Gly	Phe	Lys	Tyr	Lys	Ser	Gly	
545					550					555					560	
atg	tac	ctg	ttt	gtg	aag	tgc	cct	gat	gtc	tct	cct	ttc	gaa	tgg	cat	1728
Met	Tyr	Leu	Phe	Val	Lys	Cys	Pro	Asp	Val	Ser	Pro	Phe	Glu	Trp	His	
				565					570					575		
ccc	ttc	tcc	atc	act	tct	gca	cct	gga	gat	gac	tac	ctg	agt	gtg	cat	1776
Pro	Phe	Ser	Ile	Thr	Ser	Ala	Pro	Gly	Asp	Asp	Tyr	Leu	Ser	Val	His	
			580					585					590			
atc	cgt	aca	cta	ggt	gac	tgg	acg	act	gaa	ctc	aga	aac	ctg	ttt	ggg	1824
Ile	Arg	Thr	Leu	Gly	Asp	Trp	Thr	Thr	Glu	Leu	Arg	Asn	Leu	Phe	Gly	
		595				600						605				
aag	gct	tgc	gag	gca	cag	gtt	act	tct	aag	aag	gct	acc	ctt	tca	aga	1872
Lys	Ala	Cys	Glu	Ala	Gln	Val	Thr	Ser	Lys	Lys	Ala	Thr	Leu	Ser	Arg	
		610				615					620					
ctt	gaa	act	aca	gtt	gtg	gcg	gac	gct	cag	aca	gag	gat	act	agg	ttt	1920
Leu	Glu	Thr	Thr	Val	Val	Ala	Asp	Ala	Gln	Thr	Glu	Asp	Thr	Arg	Phe	
625					630				635						640	
cct	aag	gtc	ctt	att	gat	ggg	ccc	tat	ggt	gca	ccg	gcg	caa	aac	tac	1968
Pro	Lys	Val	Leu	Ile	Asp	Gly	Pro	Tyr	Gly	Ala	Pro	Ala	Gln	Asn	Tyr	
				645					650					655		
aag	aag	tat	gac	att	ctt	ttg	ctt	att	ggt	ctt	gga	att	ggt	gct	act	2016
Lys	Lys	Tyr	Asp	Ile	Leu	Leu	Leu	Ile	Gly	Leu	Gly	Ile	Gly	Ala	Thr	
			660					665					670			
cct	ttc	atc	agc	att	ctg	aag	gat	ctg	ttg	aac	aac	att	aaa	tcc	aac	2064
Pro	Phe	Ile	Ser	Ile	Leu	Lys	Asp	Leu	Leu	Asn	Asn	Ile	Lys	Ser	Asn	
		675					680						685			
gaa	gag	gtg	gaa	agc	ata	cat	ggt	tct	gag	ata	ggc	agc	ttc	aag	aac	2112
Glu	Glu	Val	Glu	Ser	Ile	His	Gly	Ser	Glu	Ile	Gly	Ser	Phe	Lys	Asn	
		690					695				700					
aat	ggg	cca	gga	aga	gct	tac	ttc	tac	tgg	gtg	acc	aga	gag	caa	ggg	2160
Asn	Gly	Pro	Gly	Arg	Ala	Tyr	Phe	Tyr	Trp	Val	Thr	Arg	Glu	Gln	Gly	
705					710				715						720	
tcc	ttc	gag	tgg	ttt	aaa	gga	gtc	atg	aac	gat	gtc	gct	gaa	agt	gat	2208
Ser	Phe	Glu	Trp	Phe	Lys	Gly	Val	Met	Asn	Asp	Val	Ala	Glu	Ser	Asp	

	725		730		735	
cac aat aat att ata gag atg	cac aat tac ctg acc agc gtg tat gaa	2256				
His Asn Asn Ile Ile Glu Met	His Asn Tyr Leu Thr Ser Val Tyr Glu					
740	745	750				
gaa ggc gac gca agg tca gct ttg att gcc atg gtt cag tca ctt caa	2304					
Glu Gly Asp Ala Arg Ser Ala Leu Ile Ala Met Val Gln Ser Leu Gln						
755	760	765				
cat gcc aaa aat ggt gtg gat atc gtc tcc ggc agc agg att cgc aca	2352					
His Ala Lys Asn Gly Val Asp Ile Val Ser Gly Ser Arg Ile Arg Thr						
770	775	780				
cat ttt gcg agg cct aac tgg aga aag gtg ttc tct gac ttg gcg aat	2400					
His Phe Ala Arg Pro Asn Trp Arg Lys Val Phe Ser Asp Leu Ala Asn						
785	790	795				
gcc cac aaa aac tca cgc ata ggt gtt ttc tat tgt gga tcc cct aca	2448					
Ala His Lys Asn Ser Arg Ile Gly Val Phe Tyr Cys Gly Ser Pro Thr						
805	810	815				
ctc acg aaa caa ctc aag gat ctt tca aaa gaa ttc agc cag aca acc	2496					
Leu Thr Lys Gln Leu Lys Asp Leu Ser Lys Glu Phe Ser Gln Thr Thr						
820	825	830				
aca act aga ttc cac ttc cac aag gaa aac ttt taa	2532					
Thr Thr Arg Phe His Phe His Lys Glu Asn Phe						
835	840					

<210> 18

<211> 843

<212> PRT

<213> Oryza sativa

<400> 18

Met Ala Ser Pro Tyr Asp His Gln Ser Pro His Ala Gln His Pro Ser	
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Phe Ala Arg Gly Leu Met Lys Gln Pro Ser Arg Leu Ala Ser Gly Val	
35 40 45	
Arg Gln Phe Ala Ser Arg Val Ser Met Lys Val Pro Glu Gly Val Gly	
50 55 60	
Gly Met Arg Pro Gly Gly Arg Met Thr Arg Met Gln Ser Ser Ala	
65 70 75 80	
Gln Val Gly Leu Arg Gly Leu Arg Phe Leu Asp Lys Thr Ser Gly Gly	
85 90 95	
Lys Glu Gly Trp Lys Ser Val Glu Arg Arg Phe Asp Glu Met Asn Arg	
100 105 110	
Asn Gly Arg Leu Pro Lys Glu Ser Phe Gly Lys Cys Ile Gly Met Gly	
115 120 125	
Asp Ser Lys Glu Phe Ala Gly Glu Leu Phe Val Ala Leu Ala Arg Arg	
130 135 140	
Arg Asn Leu Glu Pro Glu Asp Gly Ile Thr Lys Glu Gln Leu Lys Glu	
145 150 155 160	
Phe Trp Glu Glu Met Thr Asp Gln Asn Phe Asp Ser Arg Leu Arg Ile	
165 170 175	
Phe Phe Asp Met Cys Asp Lys Asn Gly Asp Gly Met Leu Thr Glu Asp	
180 185 190	
Glu Val Lys Glu Val Ile Ile Leu Ser Ala Ser Ala Asn Lys Leu Ala	
195 200 205	
Lys Leu Lys Gly His Ala Ala Thr Tyr Ala Ser Leu Ile Met Glu Glu	
210 215 220	
Leu Asp Pro Asp Asp Arg Gly Tyr Ile Glu Ile Trp Gln Leu Glu Thr	
225 230 235 240	
Leu Leu Arg Gly Met Val Ser Ala Gln Ala Ala Pro Glu Lys Met Lys	
245 250 255	

Arg	Thr	Thr	Ser	Ser	Leu	Ala	Arg	Thr	Met	Ile	Pro	Ser	Arg	Tyr	Arg		
			260					265					270				
Ser	Pro	Leu	Lys	Arg	His	Val	Ser	Arg	Thr	Val	Asp	Phe	Val	His	Glu		
		275					280					285					
Asn	Trp	Lys	Arg	Ile	Trp	Leu	Val	Ala	Leu	Trp	Leu	Ala	Val	Asn	Val		
	290					295					300						
Gly	Leu	Phe	Ala	Tyr	Lys	Phe	Glu	Gln	Tyr	Glu	Arg	Arg	Ala	Ala	Phe		
305					310					315					320		
Gln	Val	Met	Gly	His	Cys	Val	Cys	Val	Ala	Lys	Gly	Ala	Ala	Glu	Val		
				325					330					335			
Leu	Lys	Leu	Asn	Met	Ala	Leu	Ile	Leu	Leu	Pro	Val	Cys	Arg	Asn	Thr		
			340					345					350				
Leu	Thr	Thr	Leu	Arg	Ser	Thr	Ala	Leu	Ser	His	Val	Ile	Pro	Phe	Asp		
		355					360					365					
Asp	Asn	Ile	Asn	Phe	His	Lys	Val	Ile	Ala	Ala	Thr	Ile	Ala	Ala	Ala		
370						375					380						
Thr	Ala	Val	His	Thr	Leu	Ala	His	Val	Thr	Cys	Asp	Phe	Pro	Arg	Leu		
385					390					395					400		
Ile	Asn	Cys	Pro	Ser	Asp	Lys	Phe	Met	Ala	Thr	Leu	Gly	Pro	Asn	Phe		
				405				410						415			
Gly	Tyr	Arg	Gln	Pro	Thr	Tyr	Ala	Asp	Leu	Leu	Glu	Ser	Ala	Pro	Gly		
			420					425					430				
Val	Thr	Gly	Ile	Leu	Met	Ile	Ile	Ile	Met	Ser	Phe	Ser	Phe	Thr	Leu		
	435					440						445					
Ala	Thr	His	Ser	Phe	Arg	Arg	Ser	Val	Val	Lys	Leu	Pro	Ser	Pro	Leu		
	450					455					460						
His	His	Leu	Ala	Gly	Phe	Asn	Ala	Phe	Trp	Tyr	Ala	His	His	Leu	Leu		
465					470					475					480		
Val	Leu	Ala	Tyr	Val	Leu	Leu	Val	Val	His	Ser	Tyr	Phe	Ile	Phe	Leu		
				485				490						495			
Thr	Arg	Glu	Trp	Tyr	Lys	Lys	Thr	Thr	Trp	Met	Tyr	Leu	Ile	Val	Pro		
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Ile	Val	Pro	Phe	Asp	Asp	Ser	Leu	Asn	Phe	His	Lys	Val	Ile	Ala	Ile	
			420					425					430			
gga	att	tca	gtt	gga	gtt	gga	atc	cat	gct	aca	tct	cac	tta	gca	tgt	1344
Gly	Ile	Ser	Val	Gly	Val	Gly	Ile	His	Ala	Thr	Ser	His	Leu	Ala	Cys	
		435				440						445				
gat	ttc	ccc	cga	ctg	ata	gct	gca	gac	gaa	gat	cag	tat	gag	cca	atg	1392
Asp	Phe	Pro	Arg	Leu	Ile	Ala	Ala	Asp	Glu	Asp	Gln	Tyr	Glu	Pro	Met	
		450				455					460					
gag	aag	tat	ttt	ggg	cca	cag	aca	aag	aga	tat	ttg	gac	ttt	gtt	caa	1440
Glu	Lys	Tyr	Phe	Gly	Pro	Gln	Thr	Lys	Arg	Tyr	Leu	Asp	Phe	Val	Gln	
		465			470			475							480	
tcg	gta	gaa	gga	gtt	acc	ggg	att	gga	atg	gtt	gta	cta	atg	acc	ata	1488
Ser	Val	Glu	Gly	Val	Thr	Gly	Ile	Gly	Met	Val	Val	Leu	Met	Thr	Ile	
			485					490					495			
gcc	ttt	aca	ttg	gct	aca	aca	tggt	ttc	aga	cgt	aat	aag	ctc	aac	ctt	1536
Ala	Phe	Thr	Leu	Ala	Thr	Thr	Trp	Phe	Arg	Arg	Asn	Lys	Leu	Asn	Leu	
			500					505					510			
cct	gga	cca	ctg	aag	aaa	ata	aca	ggc	ttc	aat	gcc	ttc	tggt	tac	tct	1584
Pro	Gly	Pro	Leu	Lys	Lys	Ile	Thr	Gly	Phe	Asn	Ala	Phe	Trp	Tyr	Ser	
		515					520					525				
cac	cac	tta	ttt	gtt	atc	gtc	tac	tcg	ctt	ctt	gtc	gtt	cat	gga	ttc	1632
His	His	Leu	Phe	Val	Ile	Val	Tyr	Ser	Leu	Leu	Val	Val	His	Gly	Phe	
		530				535					540					
tac	gta	tac	ctc	atc	atc	gag	cca	tggt	tac	aag	aaa	acg	aca	tggt	atg	1680
Tyr	Val	Tyr	Leu	Ile	Ile	Glu	Pro	Trp	Tyr	Lys	Lys	Thr	Thr	Trp	Met	
		545			550			555							560	
tat	ttg	atg	gta	ccg	gtg	gtt	ctt	tac	ttg	tgt	gaa	agg	ctg	att	cgt	1728
Tyr	Leu	Met	Val	Pro	Val	Val	Leu	Tyr	Leu	Cys	Glu	Arg	Leu	Ile	Arg	
			565					570					575			

gca ttc agg tca agc gtc gag gct gtt tca gtg cta aag gtt gct gtg	1776
Ala Phe Arg Ser Ser Val Glu Ala Val Ser Val Leu Lys Val Ala Val	
580 585 590	
tta cca ggg aat gtc ttg tcg ctt cac ttg tca aga cca agc aac ttc	1824
Leu Pro Gly Asn Val Leu Ser Leu His Leu Ser Arg Pro Ser Asn Phe	
595 600 605	
aga tac aag agt gga caa tac atg tat ctc aac tgt tct gca gtt tct	1872
Arg Tyr Lys Ser Gly Gln Tyr Met Tyr Leu Asn Cys Ser Ala Val Ser	
610 615 620	
aca tta gaa tgg cat cca ttc tca att acc tca gct cca gga gat gac	1920
Thr Leu Glu Trp His Pro Phe Ser Ile Thr Ser Ala Pro Gly Asp Asp	
625 630 635 640	
tac ctc agt gtc cac atc agg gtt tta gga gac tgg act aag caa tta	1968
Tyr Leu Ser Val His Ile Arg Val Leu Gly Asp Trp Thr Lys Gln Leu	
645 650 655	
aga tca tta ttc tct gag gtg tgc aag cca cgc cct cct gat gaa cac	2016
Arg Ser Leu Phe Ser Glu Val Cys Lys Pro Arg Pro Pro Asp Glu His	
660 665 670	
aga ctg aac aga gcc gac tcg aag cac tgg gat tac atc cct gac ttt	2064
Arg Leu Asn Arg Ala Asp Ser Lys His Trp Asp Tyr Ile Pro Asp Phe	
675 680 685	
cca aga atc cta att gat ggt cca tat gga gca cca caa gac tac	2112
Pro Arg Ile Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala Gln Asp Tyr	
690 695 700	
aag aag ttt gaa gtt gtt ctg cta gtg ggt cta gga atc ggt gcc act	2160
Lys Lys Phe Glu Val Val Leu Leu Val Gly Leu Gly Ile Gly Ala Thr	
705 710 715 720	
ccg atg atc agc ata gtg agt gac ata atc aat aac ttg aaa ggc gtg	2208
Pro Met Ile Ser Ile Val Ser Asp Ile Ile Asn Asn Leu Lys Gly Val	
725 730 735	
gaa gaa ggc agt aac cga aga cag tca ccg atc cat aat atg gtc aca	2256
Glu Glu Gly Ser Asn Arg Arg Gln Ser Pro Ile His Asn Met Val Thr	
740 745 750	
cct cct gtt tct cca tca aga aaa agt gag acg ttc aga acc aag aga	2304
Pro Pro Val Ser Pro Ser Arg Lys Ser Glu Thr Phe Arg Thr Lys Arg	
755 760 765	
gct tac ttc tac tgg gtc aca aga gag cag ggg tcg ttt gac tgg ttc	2352
Ala Tyr Phe Tyr Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe	
770 775 780	
aag aac gtg atg gac gaa gtg act gaa aca gac cgc aaa aac gta att	2400
Lys Asn Val Met Asp Glu Val Thr Glu Thr Asp Arg Lys Asn Val Ile	
785 790 795 800	
gag ctg cat aat tac tgc acc agc gtt tac gag gaa ggg gac gcg agg	2448
Glu Leu His Asn Tyr Cys Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg	
805 810 815	
tct gca ctt atc acg atg ctc cag tct cta aac cat gct aag cat gga	2496
Ser Ala Leu Ile Thr Met Leu Gln Ser Leu Asn His Ala Lys His Gly	
820 825 830	
gtg gac gtt gtg tca gga aca cgt gtc atg tcc cat ttc gct agg cca	2544
Val Asp Val Val Ser Gly Thr Arg Val Met Ser His Phe Ala Arg Pro	
835 840 845	
aac tgg aga agc gtt ttc aaa agg atc gct gtg aat cat cct aag act	2592
Asn Trp Arg Ser Val Phe Lys Arg Ile Ala Val Asn His Pro Lys Thr	
850 855 860	
aga gtc gga gtg ttt tat tgt gga gca gct ggg tta gtg aaa gag tta	2640
Arg Val Gly Val Phe Tyr Cys Gly Ala Ala Gly Leu Val Lys Glu Leu	
865 870 875 880	
cga cac tta tca ctg gat ttc tct cat aag acc tcc acc aag ttc atc	2688
Arg His Leu Ser Leu Asp Phe Ser His Lys Thr Ser Thr Lys Phe Ile	
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ttc cat aaa gag aat ttc taa	2709

Phe His Lys Glu Asn Phe
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<210> 22

<211> 902

<212> PRT

<213> Arabidopsis thaliana

<400> 22

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		20					25						30		
Ala	Thr	Thr	Ser	Asn	Tyr	Tyr	Gly	Glu	Asp	Glu	Pro	Tyr	Val	Glu	Ile
		35					40					45			
Thr	Leu	Asp	Ile	His	Asp	Asp	Ser	Val	Ser	Val	Tyr	Gly	Leu	Lys	Ser
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Pro	Asn	His	Arg	Gly	Ala	Gly	Ser	Asn	Tyr	Glu	Asp	Gln	Ser	Leu	Leu
	65				70					75				80	
Arg	Gln	Gly	Arg	Ser	Gly	Arg	Ser	Asn	Ser	Val	Leu	Lys	Arg	Leu	Ala
				85					90					95	
Ser	Ser	Val	Ser	Thr	Gly	Ile	Thr	Arg	Val	Ala	Ser	Ser	Val	Ser	Ser
		100					105						110		
Ser	Ser	Ala	Arg	Lys	Pro	Pro	Arg	Pro	Gln	Leu	Ala	Lys	Leu	Arg	Arg
		115					120					125			
Ser	Lys	Ser	Arg	Ala	Glu	Leu	Ala	Leu	Lys	Gly	Leu	Lys	Phe	Ile	Thr
	130					135					140				
Lys	Thr	Asp	Gly	Val	Thr	Gly	Trp	Pro	Glu	Val	Glu	Lys	Arg	Phe	Tyr
	145				150					155					160
Val	Met	Thr	Met	Thr	Asn	Asn	Gly	Leu	Leu	His	Arg	Ser	Arg	Phe	Gly
				165				170						175	
Glu	Cys	Ile	Gly	Met	Lys	Ser	Thr	Glu	Phe	Ala	Leu	Ala	Leu	Phe	Asp
		180						185					190		
Ala	Leu	Ala	Arg	Arg	Glu	Asn	Val	Ser	Gly	Asp	Ser	Ile	Asn	Met	Asn
		195					200					205			
Glu	Leu	Lys	Glu	Phe	Trp	Lys	Gln	Ile	Thr	Asp	Gln	Asp	Phe	Asp	Ser
	210					215					220				
Arg	Leu	Arg	Thr	Phe	Phe	Ala	Met	Val	Asp	Lys	Asp	Ser	Asp	Gly	Arg
	225				230					235				240	
Leu	Asn	Glu	Ala	Glu	Val	Arg	Glu	Ile	Ile	Thr	Leu	Ser	Ala	Ser	Ala
			245					250						255	
Asn	Glu	Leu	Asp	Asn	Ile	Arg	Arg	Gln	Ala	Asp	Glu	Tyr	Ala	Ala	Leu
		260						265					270		
Ile	Met	Glu	Glu	Leu	Asp	Pro	Tyr	His	Tyr	Gly	Tyr	Ile	Met	Ile	Glu
	275						280					285			
Asn	Leu	Glu	Ile	Leu	Leu	Leu	Gln	Ala	Pro	Met	Gln	Asp	Val	Arg	Asp
	290					295					300				
Gly	Glu	Ser	Lys	Lys	Leu	Ser	Lys	Met	Leu	Ser	Gln	Asn	Leu	Met	Val
	305				310					315				320	
Pro	Gln	Ser	Arg	Asn	Leu	Gly	Ala	Arg	Phe	Cys	Arg	Gly	Met	Lys	Tyr
			325						330					335	
Phe	Leu	Phe	Asp	Asn	Trp	Lys	Arg	Val	Trp	Val	Met	Ala	Leu	Trp	Ile
		340					345					350			
Gly	Ala	Met	Ala	Gly	Leu	Phe	Thr	Trp	Lys	Phe	Met	Glu	Tyr	Arg	Lys
		355					360				365				
Arg	Ser	Ala	Tyr	Glu	Val	Met	Gly	Val	Cys	Val	Cys	Ile	Ala	Lys	Gly
	370					375					380				
Ala	Ala	Glu	Thr	Leu	Lys	Leu	Asn	Met	Ala	Met	Ile	Leu	Leu	Pro	Val
	385				390					395				400	
Cys	Arg	Asn	Thr	Ile	Thr	Trp	Leu	Arg	Thr	Lys	Thr	Lys	Leu	Ser	Ala
				405					410					415	

Ile Val Pro Phe Asp Asp Ser Leu Asn Phe His Lys Val Ile Ala Ile
 420 425 430
 Gly Ile Ser Val Gly Val Gly Ile His Ala Thr Ser His Leu Ala Cys
 435 440 445
 Asp Phe Pro Arg Leu Ile Ala Ala Asp Glu Asp Gln Tyr Glu Pro Met
 450 455 460
 Glu Lys Tyr Phe Gly Pro Gln Thr Lys Arg Tyr Leu Asp Phe Val Gln
 465 470 475 480
 Ser Val Glu Gly Val Thr Gly Ile Gly Met Val Val Leu Met Thr Ile
 485 490 495
 Ala Phe Thr Leu Ala Thr Thr Trp Phe Arg Arg Asn Lys Leu Asn Leu
 500 505 510
 Pro Gly Pro Leu Lys Lys Ile Thr Gly Phe Asn Ala Phe Trp Tyr Ser
 515 520 525
 His His Leu Phe Val Ile Val Tyr Ser Leu Leu Val Val His Gly Phe
 530 535 540
 Tyr Val Tyr Leu Ile Ile Glu Pro Trp Tyr Lys Lys Thr Thr Trp Met
 545 550 555 560
 Tyr Leu Met Val Pro Val Val Leu Tyr Leu Cys Glu Arg Leu Ile Arg
 565 570 575
 Ala Phe Arg Ser Ser Val Glu Ala Val Ser Val Leu Lys Val Ala Val
 580 585 590
 Leu Pro Gly Asn Val Leu Ser Leu His Leu Ser Arg Pro Ser Asn Phe
 595 600 605
 Arg Tyr Lys Ser Gly Gln Tyr Met Tyr Leu Asn Cys Ser Ala Val Ser
 610 615 620
 Thr Leu Glu Trp His Pro Phe Ser Ile Thr Ser Ala Pro Gly Asp Asp
 625 630 635 640
 Tyr Leu Ser Val His Ile Arg Val Leu Gly Asp Trp Thr Lys Gln Leu
 645 650 655
 Arg Ser Leu Phe Ser Glu Val Cys Lys Pro Arg Pro Pro Asp Glu His
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 Arg Leu Asn Arg Ala Asp Ser Lys His Trp Asp Tyr Ile Pro Asp Phe
 675 680 685
 Pro Arg Ile Leu Ile Asp Gly Pro Tyr Gly Ala Pro Ala Gln Asp Tyr
 690 695 700
 Lys Lys Phe Glu Val Val Leu Leu Val Gly Leu Gly Ile Gly Ala Thr
 705 710 715 720
 Pro Met Ile Ser Ile Val Ser Asp Ile Ile Asn Asn Leu Lys Gly Val
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 Glu Glu Gly Ser Asn Arg Arg Gln Ser Pro Ile His Asn Met Val Thr
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 Ala Tyr Phe Tyr Trp Val Thr Arg Glu Gln Gly Ser Phe Asp Trp Phe
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 Lys Asn Val Met Asp Glu Val Thr Glu Thr Asp Arg Lys Asn Val Ile
 785 790 795 800
 Glu Leu His Asn Tyr Cys Thr Ser Val Tyr Glu Glu Gly Asp Ala Arg
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 Val Asp Val Val Ser Gly Thr Arg Val Met Ser His Phe Ala Arg Pro
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 Asn Trp Arg Ser Val Phe Lys Arg Ile Ala Val Asn His Pro Lys Thr
 850 855 860
 Arg Val Gly Val Phe Tyr Cys Gly Ala Ala Gly Leu Val Lys Glu Leu
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<211> 20
<212> DNA
<213> Artificial sequence

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oligonucleotide primer

<400> 23
garcaaggct cttttgattg

20

<210> 24
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oligonucleotide primer

<400> 24
gaaatgctcc ttatggaatt c

21